

The Pan-Pacific Entomologist

Vol. XXXI

January, 1955

No. 1

A REVISION OF THE NORTH AMERICAN SPECIES OF EUROPHILUS, A SUBGENUS OF AGONUM WITH A NOTE ON AGONUM BELLERI

(Coleoptera: Carabidae)

CARL H. LINDROTH

Zool. Inst. of University, Lund, Sweden

Europhilus has often been treated as a separate genus (see Casey, 1920:125; Jeannel, 1942:890) but the characters distinguishing its members from *Agonum*, *s. str.*, are too insignificant. Furthermore, in the palaeartic fauna, *A. antennarium* Duftschmid and *sordidum* Dejean to some extent represent transitional forms (Müller, 1934:41). The main feature characteristic of the subgenus *Europhilus*, besides the pointed, not at all truncate tip of the last joint of the maxillary palpi, is the pubescence of the antennae, commencing on the third joint, whereas in the other subgenera of *Agonum* the third joint, except for the long terminal setae, is completely glabrous. As far as I know there are but four exceptions to this characteristic in the North American fauna, *viz.*, *A. (Punctagonum) belleri* Hatch, *A. (Anchus) pusillum* LeConte, *A. (Stictanchus) anchomenoides* Randall, and *A. (Idiochroma) quadrimaculatum* Horn. All of these likewise possess a more expanded antennal pubescence. In *pusillum* and *quadrimaculatum* the prothorax has a shape quite different from *Europhilus*, in *belleri* and *anchomenoides* the terminal point of the maxillary palpi is evidently truncate at tip.

In spite of these exceptions any North American member of the subgenus *Europhilus* will be readily separated from other species of *Agonum*, *s.l.*, by the combination of pubescent third but glabrous second joint of the antennae, pointed last joint of the maxillary palpi and the glabrous elytra.

Also larval characters have been used for maintaining *Europhilus* as a genus separate from *Agonum* (Larsson, 1941:322). Particular attention has been placed upon the presence of one or more irregular incisions of the inner edge of the mandibulae outside the retinaculum, as well as upon the configuration of the frontal edge of the nasale (fig. 1). To my mind these characters,

though apparently constant, do not justify a more independent taxonomic position of *Europhilus* than of *Platynus*, *s. str.*, *Anchus*, *Idiochroma*, etc., likewise generally treated as subgenera of *Agonum*.

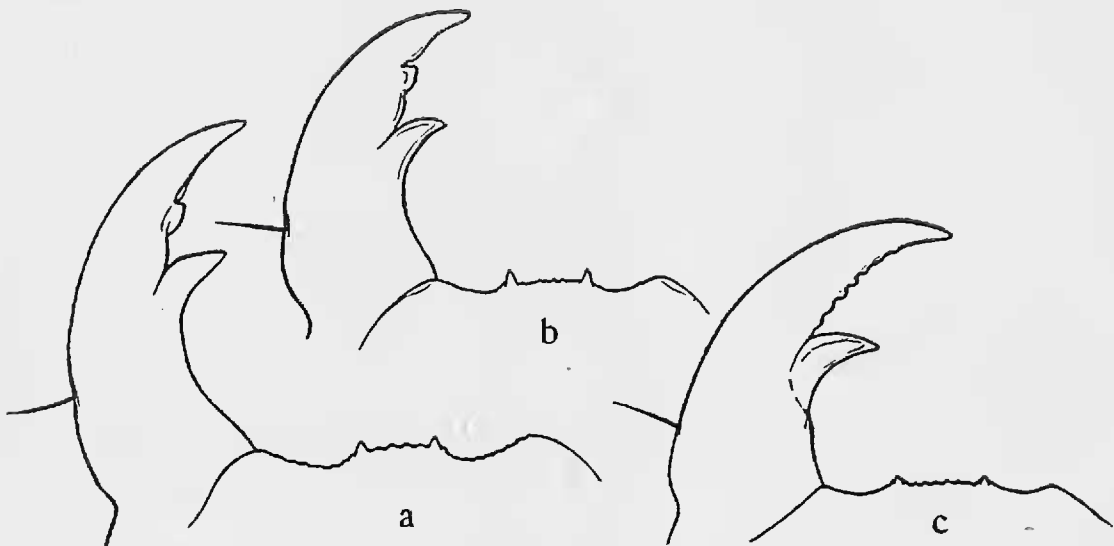


Fig. 1. Left mandibula and nasale of larva of: *a. Agonum (Europhilus) thoreyi* Dejean, 3rd stage (Denmark, Utterslev Mose); *b. Agonum (Europhilus) consimile* Gyllenhal, 3rd stage (Labrador, W. St. Modest), *c. Agonum s. str., ericeti* Panzer, 1st stage, greater magnification (Sweden, Södermanland, Ricksten, *ex ovo*).

In general habitus *Europhilus* agrees with *Agonum*, *s. str.* (type *cupripenne*, *melanarium*, etc.), but the size is usually smaller and the prothorax proportionally narrower, always impunctate. The number and position of dorsal setigerous punctures on or at the third interval of elytra is subject to considerable individual variation but the number seems never to be less than four.

A remarkable confusion is prevailing among North American *Europhilus* in public and private collections, as well as in the nomenclature of species. This is largely due to the unusual variability, in size, color, prothorax form, and other characteristics, displayed by most species. Furthermore, the form and sculpture of the penis, which provides such excellent taxonomic characters within the *Agonum*, *s.str.*, gives very little help in *Europhilus*. On the other hand, the microsculpture of elytra (investigated on the central part of the inner intervals), the position of the basal setigerous puncture of prothorax and the sulci of the hind tarsi, are useful and apparently rather constant characters. Even the colour of the antennae seems subject to little variation only.

Of the species included in this review I have seen all except

galvestonicum Casey (1920:126), described after a single male from Texas. I failed to study the type during my visit at the National Museum, Washington, because at that time I had no intention to make a complete revision of the subgenus. According to the description, and also the provenience, *galvestonicum* seems to be a distinct species.

Abbreviations used:

AMN=American Museum of Natural History, New York.

BMN=British Museum, Natural History, London.

DAO=Department of Agriculture, Ottawa.

MCZ=Museum of Comparative Zoology, Cambridge, Mass.

NMW=National Museum, Washington, D.C.

UMH=Zoological Museum, University, Helsingfors, Finland.

!=Specimen seen by the present author.

KEY TO THE SPECIES

1. Upper surface completely black with a more or less pronounced metallic lustre. Antennae and legs black (exceptionally the basal joint of antennae and the tibiae slightly piceous).2
 - At least the elytra not completely black or, if so, without metallic lustre (in one species slightly iridescent). First antennal joint and femora (often the whole legs) yellowish, brown or piceous.4
2. Prothorax without trace of hind angles (fig. 2a). Microsculpture of elytra consisting of isodiametric meshes which show no tendency of forming transverse rows.1. *simile*
 - Hind-angles of prothorax at least suggested. Microsculpture meshes of elytra more irregular, more or less transverse, and with tendency of arrangement in transverse rows.3
3. Prothorax with obtuse but distinct hind-angles, the sides before them straight or even slightly sinuate (fig. 2c). First joint of hind-tarsi with lateral groove also on the inside. Antennae shorter.....3. *exaratum*
 - Hind-angles of prothorax suggested only (completely rounded, fig. 2b). First joint of hind-tarsi without (or with barely traceable) inside groove.2. *consimile*
4. Joints 2-4 of antennae darker than the following, almost black. All joints of hind-tarsi (besides the lateral grooves of joint 1-4) with a sharp median carina.6. *gratosum*
 - No colour contrast between joint 4 and 5 of antennae. Last tarsal joint smooth above or with a median furrow.5
5. Prothorax pale as the elytra, sharply contrasting against the black head.6
 - At least the disk of prothorax as dark as the head.7
6. Eyes small and flat.8. *lutulentum*
 - Eyes "very prominent." *galvestonicum*

7. All joints of hind-tarsi (besides the lateral groves of joint 1-4) with a median furrow (best observed on the last joint).....4. *thoreyi*
 - Tarsal joints smooth above.8
8. Basal setigerous puncture of prothorax removed from side margin. Antennae (with very rare individual exceptions) with 3 pale basal joints and again paler at tip. Hind wings often reduced.5. *retractum*
 - Basal setigerous puncture of prothorax touching the side margin. Only 1-2 basal joints of antennae pale. Wings always full.9
9. The 8th stria of elytra deeply impressed in its whole length. The microsculpture of elytra consists of very fine and close transverse lines without tendency of forming meshes, elytra therefore slightly iridescent.10. *darlingtoni*
 - The 8th stria shallower, especially in the middle. Microsculpture of elytra coarser, forming evident, more or less isodiametric meshes.10
10. Eyes small and very flat. Prothorax not transverse, its narrowly reflexed lateral part barely enlarged towards the base. Microsculpture of elytra consisting of isodiametric meshes without tendency of forming transverse rows.9. *dilutipenne*
 - Eyes strongly convex. Prothorax transverse, its side margin more widely reflexed towards the base. Microsculpture of elytra with more irregular meshes with slight tendency of forming transverse rows.4. *sordens*

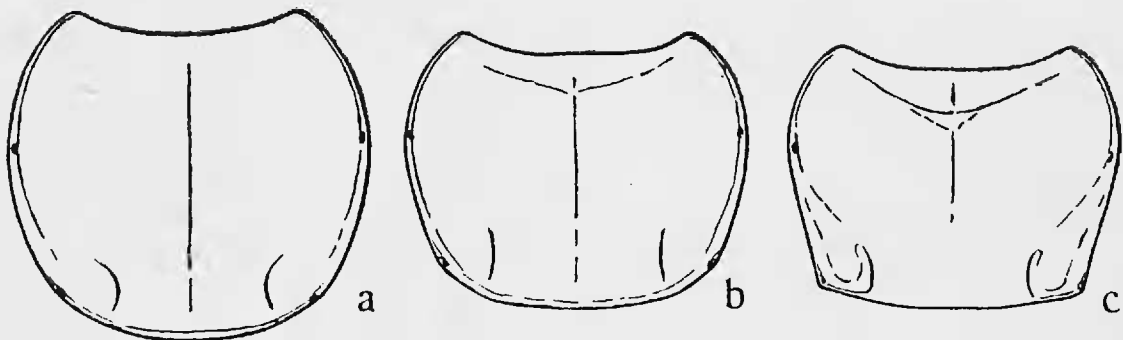


Fig. 2. Prothorax of: a. *Agonum (Europhilus) simile* Kirby (paratype). b. *Agonum (Europhilus) consimile* Gyllenhal (Labrador, Forteau), c. *Agonum (Europhilus) exaratum* Mannerheim (lecto-holotype). The hind-angles are not always equally prominent in *exaratum*.

1. AGONUM (EUROPHILUS) SIMILE Kirby, 1837

Black with slight brassy lustre above. - The eyes less prominent than in the two following species. Prothorax (fig. 2a) very convex, oviform with completely disappearing hind-angles and only slightly deplanate around the shallow basal foveae. Elytra with more protruding shoulder part and more sinuate laterally before apex than in the two following species and therefore with more projected tip. The striae sharp but very fine, the intervals completely flat. Length 6.7 mm.

Only the two original ♀♀ known (BMN!). The locality was not stated but is probably situated somewhere at the North Saskatchewan River.

2. AGONUM (EUROPHILUS) CONSIMILE Gyllenhal, 1810

(*invalidum* Casey, 1924; ? *fragile* Mannerheim, 1853)

The identity of Casey's species was verified by examination of the male type from Edmonton, Alberta (NMW!).—The type of *fragile* Mannerheim could not be found (it is not in UMH) but the description, especially of prothorax, fits *consimile* very well.

Black with more or less pronounced metallic lustre above. The first antennal joint and the tibiae are occasionally slightly picescent (probably due to imperfect maturity). The antennae are slender, joints 4–10 with straight sides, 6–7 at least twice as long as wide. — Prothorax with obsolete hind-angles and slightly rounded sides in front of them. Elytra as a rule with almost flat intervals but the striae are always deeper than in *simile*. The only constant difference in penis from *exaratum* (and the palaeartic *munsteri* Hellén) is the very slight sinuation of the ventral side just before apex (fig. 3). Length 5.3–6.5 mm.

Distribution: Probably transamerican. I have seen it from Matanuska, Alaska, V.45 (J. C. Chamberlin, NMW!); Edmonton,

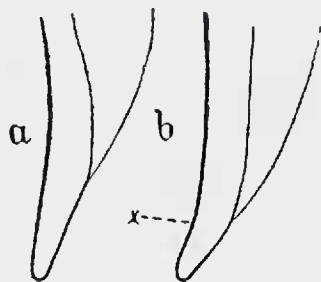


Fig. 3. Penis apex, left side view, of: *a* *Agonum (Europhilus) exaratum* Mannerheim, *b*. *Agonum (Europhilus) consimile* Gyllenhal, with the characteristic sinuation (x).

Alberta ("*invalidum* Casey"); Churchill, Manitoba, VI,VIII.37 (W. J. Brown, DAO!); Ungava Bay, Quebec (L. M. Turner, NMW!); widely distributed in southeast Labrador, Cape Breton Island (Nova Scotia) and Newfoundland. Circumpolar in high latitudes.

Ecology: This species is strongly hygrophilous. It occurs in wet bogs, as a rule close to the margin of pools and ponds, always on spots with *Carex*-vegetation and a dense carpet of mosses, but very seldom in *Sphagnum*, as on the whole it avoids the acid oligotrophic and dystrophic bogs. (Vide Lindroth, 1945:49). The larvae were found in company with the imago in Labrador and Newfoundland.

3. AGONUM (EUROPHILUS) EXARATUM Mannerheim, 1853

(*aldanicum* Poppius, 1906)

Generally shorter than *consimile*, with greatest width of elytra more

evidently behind the middle. Antennae (seen from the flat side!) shorter, outer joints (4 – 10) with rounded sides, almost ovato-oblong, 6 – 7 not at all twice as long as wide. – Prothorax varying but always with distinct hind-angles, the sides before them as a rule slightly sinuate or at least straight (fig. 2c). The elytral striae usually deeper with more convex intervals. Tarsal grooves more distinct (wide key). The penis with completely straight ventral profile line (fig. 3). Length 5.2 – 6.2 mm.

The difference from *consimile* in the microsculpture of elytra, formerly used by me (1943:64) as a separating character, according to the large material now at disposal, seems not to be constant.

Distribution: Besides the two typical females from Kadjak, Alaska (UMH), I have seen a large series from Reindeer Depot, Mackenzie Delta, Northwest Territory, 28.VI.–12.VII.1948 (W. J. Brown, DAO!), and one small female from Baker Lake, Northwest Territory, 29.VIII.1930 (A. E. Porsild, MCZ!). In the palaeartic region the species is known from Lena River, Siberia (type locality of *aldanicum* Poppius), and from the Kanin and Kola Peninsulae in northern Russia (Lindroth, 1945:43–44). The ecology is not known.

4. AGONUM (EUROPHILUS) SORDENS Kirby, 1837

(*picicorne* LeConte, 1860; *frosti* Casey, 1924)

An examination of the type specimen of *sordens* (BMN!) contradicts the opinion of Chaudoir (in LeConte, 1869:248) that it should be the same as *retractum* LeConte. The type of *picicorne* (Alb.) and five additional specimens in the collection LeConte (MCZ) differ from *sordens* by the dark colour only; the penis is identical. The synonymy of *frosti* Casey was verified by examination of the type (♀, Maine, NMW!).

This species displays a great amount of variation in colour and in the form of prothorax and the penis is likewise slightly varying in length and acuteness of the apical part. But these variations are in no way coordinated and may occur even within one small population. Therefore, there is no reason for making a division into subspecies.

The upper surface, especially head and prothorax, often shows a clear metallic lustre. The elytra as a rule are paler than head and prothorax, often as bright as in *dilutipenne*, but sometimes quite dark (“*picicorne* LeConte”). In the palest form also the side margins of prothorax are reddish and the second antennal joint is almost as pale as the first. The prothorax is clearly transverse and in this respect, as in others, the species is very similar to *consimile*,

but the two species are sufficiently separated by colour characters (vide key) and furthermore *sordens* has a pronounced longitudinal groove also on the inside of the first joint of hind-tarsi (in *consimile* at most a trace of it). An examination of the penis fails to demonstrate any useful difference between *sordens* and *consimile* so the two species must be closely related. Length 5.3–6.5 mm.

Distribution: A transamerican species, occurring from Newfoundland and Labrador to Washington (Gray & Hatch, 1941) and British Columbia (coll. Fall, MCZ!).

Ecology: On moist, open places with sparse vegetation, often with tiny mosses on the ground (not *Sphagnum*), but not necessarily at the border of open water.

5. AGONUM (EUROPHILUS) RETRACTUM LeConte, 1848

(*collusor* Casey, 1920; *facile* Casey, 1920; *serenum* Casey, 1920)

The interpretation of the species (including genital slide) was made on LeConte's male type from Lake Superior (MCZ!). The synonymy of the three Casey species was verified by examination of the types (NMW!)

Piceous black, the outer margin of prothorax and the elytra as a rule paler. Legs and base of antennae, usually the 3 first joints, rufous. (In a dark specimen from Newfoundland the entire antennae are piceous.) Elytra shorter oviform, with more rounded sides, than in the other species. The tarsi are shorter compared with the tibiae than in any other species. From *gratosum*, to which it bears the greatest resemblance, sufficiently separated by the tarsal sculpture and the colour of antennae (vide key), and also by the microsculpture of elytra forming more clearly transverse meshes which tend to be arranged in transverse rows. — The penis is slenderer, more arcuate, with more pointed apex. Concerning the wing dimorphism in this species, vide Darlington, 1936. Length 6.3–7.6 mm.

Distribution: Eastern States, Eastern Canada, west to Lake Superior.

Ecology: The habitat of this species is different from that of other American *Europhilus*. It is a true forest insect living independently of water in moderately moist debris of leaves, ferns, etc. in shady places under bushes and hardwood trees, in the company of *Calathus micropterus ingratus*.

6. AGONUM (EUROPHILUS) GRATIOSUM Mannerheim, 1853

(*picipenne* var. c, Kirby, 1837; *ruficorne* LeConte, 1850 *nec* Goeze, 1777; *lenum* or *lene* auct., e.g. Casey, 1920: 130, *nec* Dejean; *symmetricum* Casey, 1920; *properans* Casey, 1920; *antiquum* Notman, 1922; ? *carri* Casey, 1924)

As lecto-holotype I have selected a female labelled "*Anch. gratiosus* Mnh. Kadjak", Alaska (Holmberg, UMH!), as lecto-allotype

male an example from the same locality in collection LeConte (MCZ!). The latter has been compared and found identical with the type of *ruficornis* LeConte from Lake Superior (MCZ!). That Kirby's var. c of *picipenne*, characterized by the colour of antennae, belongs here, has been assumed by all students but, of course, his name cannot be used because the *f.typ.* is *thoreyi* (confirmed on the types in BMN!). Dejean's *lenum* likewise, mainly according to the description of the colour of antennae, must be referred to *thoreyi*. The two Casey names of 1920 (NMW!) as well as *antiquum* Notman (AMN!) were interpreted on the types. The latter name was established on an unusually narrow (immature and probably abnormal) form. As to *carri* Casey, unfortunately I made no note of it when studying the Casey collection and the synonymy with *gratiosum* here suggested is based on the description of the colour of antennae.

This species is easily recognized by the colour of antennae and the tarsal carina described in the key. The body is piceous black, the legs pale rufous. The microsculpture of elytra is more irregular and its meshes less pronounced isodiametric compared with *thoreyi* but the tendency of forming transverse rows is less evident than in *retractum*. The wings are always fully developed, with reflexed apical part, but comparatively so weak and small that the insect probably lacks the power of flight. Length 6.7–9.1 mm.

Distribution: Transamerican. Described from Alaska, also known from British Columbia (MCZ!DAO!), Northwest Territory (Fort Simpson, Coll. LeConte!) and Washington (Gray & Hatch, 1941). Common in the East, north to south Labrador.

Ecology: This species usually lives on firmer and drier ground than the other members of the subgenus, but as a rule in the neighborhood of standing waters. It prefers open, often clayish or peaty ground with short sparse vegetation of grasses, Carices, etc.

7. AGONUM (EUROPHILUS) THOREYI Dejean, 1828

(*lenum* Dejean, 1828; *picipenne* Kirby, 1837; *gemellum* LeConte, 1879)

Dejean's *lenum* has usually been associated with *gratiosum* (or any of its synonyms), first by Chaudoir (in LeConte, 1869:248), later by Casey (1920:130). But it is not clear whether Chaudoir studied any typical specimen of *lenum*, or not. At any rate Dejean's careful description of the colour of antennae excludes *gratiosum* and, as far as I can see, *lenum* can be applied to no other North American *Europhilus* than *thoreyi*. The characters mentioned by

Dejean as separating *lenum* from his *thoreyi*, including *puellum*, both described in the same paper (1828), are unimportant in this unusually variable species. Kirby's *picipenne* (*f. typ.*) has been generally misinterpreted (concerning his "var.c", *vide gratiosum*). LeConte first put it to *lutulentum* (1873:323), later to *dilutipenne* (1879:58). Only Casey (1920:127) used the name for *thoreyi* (verified in his collection, NMW!). I have seen the type of *picipenne* (BMN!). The identity of *gemellum* LeConte was verified by examination of the male type from Vancouver, British Columbia (MCZ!), including a genital slide.

Thoreyi is easily distinguished from all other members of the subgenus by the median furrow of its hind-tarsi, including the last joint. The closest relatives are *lutulentum* and *dilutipenne*, with similar form of head and prothorax, which agree in the perfectly isodiametric microreticulation of elytra. Length 6.4–8.7 mm.

The form occurring in North America is "*puellum* Dejean", with uniformly dark upper surface. The "*f.typ.*", with pale elytra, is strictly palaeartic.

Distribution: Transamerican, west to California (MCZ!), Washington (Gray & Hatch, 1941), British Columbia (MCZ!DAO!), Alaska (Matanuska, NMW!), north to Northwest Territory (Norman Wells, DAO!).

Ecology: In *Carex* swamps and on the border of eutrophic ponds, on very wet spots with high, close vegetation, but without a too dense carpet of mosses (never in Sphagnum).

8. AGONUM (EUROPHILUS) LUTULENTUM Le Conte, 1854

(*elegantulum* Casey, 1920; *adustum* Casey, 1920; *atriceps* Casey, 1920)

The two first-named Casey synonyms were originally (1920:127) described as subspecies of *lutulentum*, later (1924:85) the author declared *elegantulum* as a synonym whereas *adustum* was elevated to specific rank. Now, *lutulentum* is an extremely variable species as regards proportions of body and brightness of colour, that is in the characters mainly used by Casey, and this even within one and the same small population, so they cannot be used even for erecting subspecies. Casey's *adustum* and *atriceps*, in narrowness of the body, only represent the extremes in this continuous series of variation. The specific identity of *elegantulum* and *adustum* with *lutulentum* was stated by myself in the Casey collection (NMW). I failed, on that occasion, to make any note as to *atriceps* but later sent some notably broad specimens of *lutulentum* to Dr. R. F.

Blackwelder who, comparing them with the type, could find no consistent deviation from *atriceps*.

Lutulentum at the first glance differs from all other American *Europhilus* (except *galvestonicum*) by the equally pale (piceo-testaceous or paler) prothorax and elytra, contrasting against the deep black head. It agrees with *dilutipenne* and, to a lesser degree, *thoreyi* in the narrow head with flat eyes, the feebly reflexed sides of prothorax and the isodiametric microreticulation of elytra. Length 5.9–7.0 mm.

Distribution: Eastern States and Eastern Canada, west to Lake Superior and Hudson Bay Territory; Washington (Gray & Hatch, 1941). Probably transamerican.

Ecology: On very wet places at the edge of lakes, ponds and pools with dense and rich *Carex* vegetation.

9. AGONUM (EUROPHILUS) DILUTIPENNE Motschulsky, 1864

(*elongatulum* Haldeman, 1843 *nec* Dejean, 1828; *lene* LeConte, 1848 *nec lenum* Dejean, 1828; *picipenne* LeConte, 1879 *et auct.*, *nec* Kirby, 1837)

On the interpretation of *lenum* Dejean and *picipenne* Kirby, *vide thoreyi*.

Constant in colour: head and prothorax black without metallic reflection, elytra piceo-testaceous. From *sordens*, which normally has a similar coloration, distinguished by characters mentioned in the key and also by the regular isodiametric microreticulation of elytra. In *sordens* the upper surface usually shows a slight metallic lustre.

Dilutipenne is very closely related to *lutulentum* and no differences could be seen in the male genitalia. The difference in colour is apparently constant. Furthermore, in *dilutipenne* the prothorax is strongly microreticulated all over its surface (in *lutulentum* obsoletely so in centrum of the disc) and the meshes are less transverse, almost isodiametric. Finally, in *dilutipenne* the posterior setigerous puncture of prothorax is situated close to the side-margin, in *lutulentum* slightly removed from it. *Thoreyi*, agreeing in the form of prothorax as well as in the microreticulation of elytra, is larger and darker and differs also by the grooves of the hind-tarsi. Length 5.9–6.5 mm.

Distribution: Eastern States and Eastern Canada, west at least to Lake Superior, south to New Mexico.

Ecology: Habitat as *lutulentum*, in company of which it often occurs.

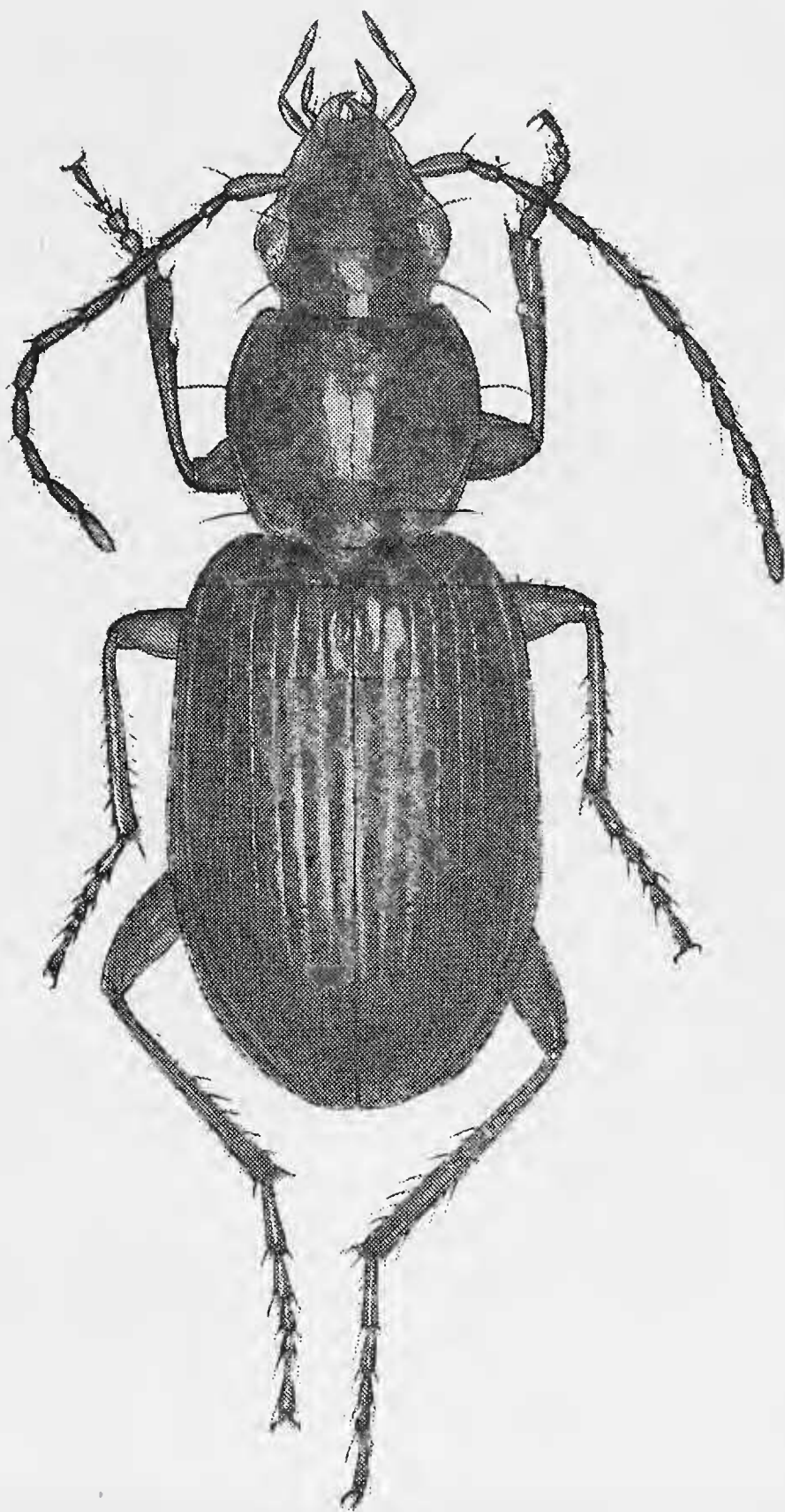


Fig. 4. *Agonum (Europhilus) darlingtoni* new species. Paratype from Halifax, Nova Scotia.

10. *Agonum (Europhilus) darlingtoni* Lindroth, new species

(Figure 4)

Black, elytra iridescent, often slightly piceous, the epipleura reddish towards apex. Mouth-parts pale, antennae piceous or nearly black, their first joint and the entire legs pale reddish. Eyes small but prominent. Prothorax oviform without traces of hind-angles. Elytra with strong, impunctured striae, evident to apex, the 8th deeply impressed in its whole length, the intervals slightly convex. Dorsal punctures inconspicuous, 4 in number, the 2 anterior at the third, the 2 posterior at the second stria. The microsculpture of elytra consists of dense, fine, transverse lines. The 3 basal joints of hind-tarsi with evident lateral and barely visible traces of inside longitudinal groove. Wings fully developed. Penis (fig. 5). Length 4.9–5.9 mm.



Fig. 5. Penis of *Agonum (Europhilus) darlingtoni* new species, paratype from Lexington, Mass.

At once recognized by the impressed eighth stria and the transverse microsculpture of elytra. In the latter respect this species deviates also from all known palaeartic species of *Europhilus*.

Distribution: *Holotype* male, *allotype* female and 11 paratypes from LEXINGTON, MASSACHUSETTS, IV., V. 1926, VIII. 1930 (P. J. Darlington Jr., MCZ); two paratypes male Groton, Connecticut, 23.V., 4.VI. 1948 (Anton Jansson); one paratype male Sackville, Halifax, Nova Scotia, 20.V. 1951 (Lindroth).

Ecology: Dr. Darlington informs me that he collected his specimens in very wet moss at the border of a pond. The data suggest that the species is an imaginal hibernator.

APPENDIX

AGONUM (PUNCTAGONUM) BELLERI Hatch

Already in the original description Hatch (1933:120) drew attention to the fact that this peculiar species, deviating from all other nearctic *Agonum*, *s.str.*, by the setigerous punctures of the alternate elytral intervals, is also characterized by the pubescence of antennae starting already on the third joint, almost as in *Europhilus*. Later, on these two characters, Gray (1937:311; *vide* also Gray & Hatch 1941:24) established the new subgenus *Punctagonum*.

Now *belleri*, in all other respects, comes extremely close to *Agonum*, *s.str.*, *ericeti* Panzer (*bifoveolatum* Sahlberg) from Europe and west Siberia. In fact, I am unable to separate the two insects on any other character, except that the antennal joints are a little shorter in *belleri*. Penis and parameres (investigated on two paratypes of *belleri* and two European *ericeti*) are identical. Even the reduction of the hind wings (narrower than one elytron but about as long, with very feeble, incompletely reflexed apical part) is exactly the same. The ecology of the two species (Hatch, 1933; Lindroth, 1945:55) is likewise completely agreeing.

If possible the comparison between *belleri* and *ericeti* should be extended to larval characters. In case the immature stages of the former should be found I here give a drawing of mandibula and nasale of the first stage larva of *ericeti* (fig. 1c).

As far as I can see, it is even doubtful whether *belleri* should not be regarded as a subspecies of *ericeti*. This may sound absurd, considering the very peculiar feature of pubescent elytra and third antennal joint in *belleri*. But both of these characters, seemingly unconnected, may be the result of a single gene. An equivalent case represents the subgenus *Anchus*. As stated by Hatch (1933: 121) the American *pusillum* LeConte is distinguished from the palaeartic *obscurum* Herbst (under which name it wrongly long passed) by the pubescent intervals of elytra, but at the same time it shows a pubescence on the basal joints of antennae, lacking in *obscurum*. Now, in this case there are also other differences, above all in the penis, so the specific separation is indisputable. But I do not think anybody would be inclined to refer *pusillum* and *obscurum* to different subgenera.

Finally, it is worth paying attention to the fact that a flightless, highly stenotopic species like *ericeti* must be predestinated to form small, isolated populations suited for the rapid maintaining of mutants, also of a non-adaptive character.

BIBLIOGRAPHY

CASEY, T. L.

1920, 1924. Memoirs on the Coleoptera. IX. XI.—Lancaster, Pa.

DARLINGTON, P. J. JR.

1936. Variation and atrophy of flying wings of some Carabid beetles,
—Ann. Ent. Soc. America. 29. Brooklyn, N.Y.

DEJEAN, P. F. M. A.

1828. Spécies général des Coléoptères, etc. 3.—Paris.

GRAY, BARBARA

1937. The Coleoptera of Washington, Carabidae: Agonini.—Publ. Univ. Wash., Thesis Ser. 2. Seattle, Wash.
- GRAY, BARBARA and M. H. HATCH
1941. The Coleoptera of Washington, Carabidae: Agonini. Univ. Wash. Publ. Biol. 10. Seattle, Wash.
- HATCH, M. H.
1933. Notes on Carabidae.—Pan-Pac. Ent. 9. San Francisco.
- JEANNEL, R.
1942. Coléoptères Carabiques. 2—Faune de France. 40. Paris.
- LARSSON, S. G.
1941. Larver.—In: Hansen, V.: Biller XI. Sandspringere og Lobebiller. —Danm. Fauna. 47. Copenhagen.
- LECONTE J. L.
1869. Synonymical notes on Coleoptera of the United States, etc.—Trans. Amer. Ent. Soc. 2. Philadelphia.
1873. Synonymical remarks upon North American Coleoptera.—Proc. Ac. Nat. Sci. Philadelphia.
1879. Synopsis of the North American species of Platynus, Bon.—Bull. Brookl. Ent. Soc. 2. Brooklyn, N.Y.
- LINDROTH, C. H.
1943. Zur Systematik fennoskandischer Carabiden. 13–33.—Ent. Tidskr. 64. Stockholm.
1945. Die fennoskandischen Carabidae. Eine tiergeographische Studie 1.—Gbgs. K. Vet. Vitt. Samh. Handl. (6) B, 4. Göteborg.
- MULLER, G.
1934. Carabiden-Studien. V. Gen. Agonum Bonelli.—Koleopt. Rundschau. 20. Vienna.

A CHANGE OF NAME IN CHRYSOBOTHRIS

(Coleoptera, Buprestidae)

In U.S.D.A. Misc. Pub. No. 470, Sept. 1942 (Rev. N. A. Chrysobothrini), on page 40, W. S. Fisher proposed the name *Chrysobothris chamberlini* for *C. calcarata* Chamberlin, pointing out that the name *C. calcarata* had previously been used by Melsheimer for a species from Pennsylvania. In Sbornik entom. odd. Nar. Musea v Praze, 1940, vol. 28, p. 93, J. Obenberger used the name *Chrysobothris chamberlini* for a species from California allied to *C. distincta*. Since these species are members of the same genus, I propose that the form previously known as *C. calcarata* Chamberlin and then as *C. chamberlini* Fisher now be called *Chrysobothris trinuncupata* Helfer, new name.—J. R. HELFER, Mendocino, California.